

A revised checklist of the moss flora of the Australian Wet Tropics

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Abstract

The Australian Wet Tropics bioregion is a hotspot for bryophyte diversity. In 2004, 397 moss taxa were known from the bioregion, since when extensive field work and taxonomic studies have added many taxa to the Wet Tropics bryophyte flora, while revisions and nomenclatural changes have reduced the number previously published. In this paper we summarise the additions to our knowledge of Wet Tropics bryophytes, and accept 410 moss taxa from the bioregion, including 170 genera in 60 families. We add 55 taxa to the flora, and 24 are rejected on the basis of false records or misidentifications, or because the records were found to be outside the Wet Tropics bioregion. Records of 14 taxa from the bioregion are considered uncertain, and 6 taxa previously considered doubtful for the bioregion are confirmed. A number of records including *Holomitrium cylindraceum* and *Taxithelium lindbergii* are reported as new to Australia.

Key Words: Australia; Australian Wet Tropics; Bryophyta; bryophyte; moss; Queensland

Introduction

The Wet Tropics bioregion of Australia extends along the seaboard of north-eastern Queensland for about 500 km, from just north of Townsville to just south of Cooktown. The bioregion adjoins to the Cape York Peninsula bioregion to the north, the Einasleigh Uplands bioregion to the west, and the Townsville Plains subregion of the Northern Brigalow Belt to the south (Goosem *et al.* 1999).

A list of the mosses known to occur in the Wet Tropics bioregion of north-east Queensland (abbreviated as the Wet Tropics), together with data on phytogeographical affinities and distribution, was published almost 15 years ago (Ramsay and Cairns 2004). Ramsay and Cairns (2004) reported 408 taxa, although our review of that list shows the actual number to have been 397 taxa — about three-quarters of the taxa known from Queensland at that time.

Extensive field work and taxonomic studies by Andi Cairns and David Meagher, together with the identification by Helen Ramsay and Alison Downing of some undetermined collections by Bernard van Zanten, Wilf Schofield, Ilma Stone, Heinar Streimann and others since 2004 have added new species and new distribution records for the bioregion. The most recent collections include some interesting discoveries: new records for

the bioregion, the state and the country; new collection of species not recorded since the late 19th century; and collections of the first fertile specimens or sporophytes for species such as *Orthomnion elimbatum* and *Mesochaete taxiforme* (Ramsay *et al.* 2018a).

Since the publication of the *Catalogue of Australian Mosses* by Streimann and Klazenga (2002) and the list for the Wet Tropics bioregion (Ramsay and Cairns 2004), data from morphological and molecular analyses have led to some significant changes in the classification of mosses (Goffinet *et al.* 2009, Goffinet and Buck 2018). Taxonomic revisions for the *Flora of Australia* (Australian Mosses Online 2011–2016) have also resulted in name changes as the result of new synonymies, revised nomenclature, and the addition or deletion of some taxa from the Australian flora. These are detailed alphabetically by genus in the following sections: 1) Additions to the Wet Tropics Moss Flora since Ramsay and Cairns (2004); 2) Taxonomic and Nomenclatural Changes; 3) Uncertain Records; 4) Excluded Taxa; and 5) Confirmed Taxa. A checklist in Table 1 provides a complete summary with species arranged in currently accepted families. The list includes for the first time data from the Melbourne University Herbarium (MELU), which contains a substantial collection of mosses from the Wet Tropics bioregion, all identified to species. However, in spite of the wide range of taxonomic studies for the Flora of Australia, many collections in Australian herbaria are still named only to family, e.g. Bryaceae, Hypnaceae, Pottiaceae, or to genus, e.g. *Ectropothecium*, *Glossadelphus*, *Leucoloma*, *Philonotis*. Further work on these collections might well generate additional new records for the Wet Tropics bioregion. The vegetation, physical geography and climate of the Wet Tropics, together with habitat descriptions and affinities of mosses recorded from the bioregion are described in detail in the earlier checklist (Ramsay and Cairns 2004), which is available online as an open-access publication.

The presence in North Queensland of an increasing number of new moss records for Australia adds to the growing list that includes taxa with relationships to or represent species in Southeast Asia, Malesia and New Caledonia as predicted by Ramsay and Cairns (2004). Many of the changes noted here have not yet been updated in Australian herbaria, while records in the Australian Moss Name Index (AusMoss), Australian Mosses Online (AMO), and the Australasian Virtual Herbarium (AVH) do not always include the most recent revisions.

There are no checklists of bryophytes available for the adjacent bioregions, which include a diversity of habitats and a suite of different taxa. Accumulating information on these bioregions would be of value for our knowledge of the Wet Tropics bryoflora, as some of the species there may occur in similar habitats yet to be investigated in the Wet Tropics bioregion.

Additions to the Wet Tropics moss flora since Ramsay and Cairns (2004)

Family classifications (below) are according to Goffinet and Buck (2018), with the exception of genus *Papillaria* (Klazenga 2011). Herbarium codes (e.g. BRI, NSW) follow Thiers (2018).

***Barbula consanguinea* (Thwaites & Mitt.) A.Jaeger (Pottiaceae)**

Barbula consanguinea was listed for Queensland by Streimann & Klazenga (2002) but Wet Tropics collections of the species were not identified until after the publication of Ramsay and Cairns (2004). Consequently, this is a new record for the Wet Tropics (*Stone 15814*, MEL 2227866A; *Streimann 31032*, CANB 732122.1).

Phylogenetic analyses by Kučera *et al.* (2013) showed the genus *Barbula* to be polyphyletic and re-established the genus *Hydrogonium*, transferring Northern Hemisphere *Barbula* (including *B. consanguinea*) to this genus. They found genus *Hydrogonium* could be separated from genus *Barbula* by distinctive axillary gemmae – elongate, seriate, ellipsoid and variously coloured in *Hydrogonium*; spherical, non-seriate and brownish with protuberant cells in *Barbula*. However, we here retain the name *B. consanguinea* pending further investigations into Wet Tropics collections.

***Barbula indica* (Hook.) Spreng. (Pottiaceae)**

Not identified until 2011 and therefore new to the current list, *Barbula indica* is known from two collections in the Wet Tropics (*Stone 25568*, MEL 2310140A and *Stone 25634*, MEL 2331628A). *B. indica* is a cosmopolitan moss with a wide distribution across northern Australia.

***Bryobartramia novae-valesiae* (Broth. ex G. Roth) I.G.Stone & G.A.M.Scott (Bryobartramiaceae)**

A tiny moss often partly covered by soil, *Bryobartramia novae-valesiae* is distributed widely in southern states but known only in Queensland from two sites in the Wet Tropics: from Kirrama State Forest (now a section of Girringun National Park) collected in 1980 (*Stone 16968*, MEL 2241125A), and from the track to the base of Wallaman Falls in 1989 (Girringun National Park, near Ingham) (*Stone 25561*, MEL 2310243A). Collections were not identified until 2017 and the species is therefore new to the Wet Tropics list.

***Buxbaumia aphylla* Hedw. (Buxbaumiaceae)**

Buxbaumia aphylla, widespread in New Zealand, was recorded for Australia from a single fertile collection (E.A. Brown 95/222, NSW 390481) in 1995 from a small boulder near Centre Peak on the Bellenden Ker Range. It was first identified by Allan Fife in 1999, and later recorded by Milne and Klazenga (2012a) but it was not listed in Ramsay and Cairns (2004). *Buxbaumia aphylla* may be separated from the two other *Buxbaumia* species in the Wet Tropics (*B. colyeriae* Burges and *B. thorsborneae* I.G. Stone) by its ciliate perichaetial leaf margins. All three species are known from Wooroonoran (Centre Peak) in the Bellenden Ker Range.

***Calyptothecium urvilleanum* (Müll. Hal.) Broth. (Pterobryaceae)**

Ramsay and Cairns (2004) record five species of *Calyptothecium*. Recent studies by Yu and Jia (2015) recognised the close relationship between *Calyptothecium recurvulum*. (Broth.) Broth., *C. subecostatum* Dixon. and *C. urvilleanum*, based on their auriculate leaf bases and rugose or undulate leaves when dry. They synonymised *C. subecostatum* under *C. recurvulum* and identified several Australian specimens previously identified as *C. recurvulum*, as *C. urvilleanum*, thereby adding another species to the Australian flora and deleting *C. subecostatum* from the updated list. As indicated on their map (Yu and Jia 2015, Fig. 2) both *C. recurvulum* and *C. urvilleanum* occur in Australia while *C. urvilleanum* is also known from tropical Asia and Oceania and *C. recurvulum* from Papua New Guinea. Ning-Ning Yu (*pers.comm.* Jan. 2017) examined the type of *C. acutum* and found it to be similar to *C. urvilleanum*. Collections of *C. acutum* in the Swedish Museum of Natural History (S) sent by Flecker and Watts to Brotherus were examined by N.-N. Yu and also found to be *C. urvilleanum*. Further examination of unnamed specimens of *Calyptothecium* in Australian herbaria may reveal *C. urvilleanum* to be more widespread.

***Calyptrochaeta flexicollis* (Mitt.) Vitt. (Daltoniaceae)**

Overlooked for the Ramsay and Cairns (2004) list, the first record of *Calyptrochaeta flexicollis* in the Wet Tropics was from Bellenden Ker in 1887 (*Sayer s.n.*, MEL 1002041A). The species was later collected on Mt. Lewis in 1982 by I.G. Stone and identified in 1998 by H. Streimann (*Stone 19548*, MEL 2245724A). Also known from two collections in Victoria, *C. flexicollis* is more common in New Zealand.

***Campylopus appressifolius* Mitt. in Hook. (Leucobryaceae)**

Often confused with *Campylopus clavatus* (Klazenga 2012a), *C. appressifolius* is known from only two sites in the Wet Tropics, from Mt. Bartle Frere (*van Zanten 681474E*, BRI AQ0696153) and from Hinchinbrook Island (*Stone 21427*, MEL 2368025A). The collections were identified by J-P. Frahm in 1986 as *C. australis*, a synonym of *C. appressifolius*, but the taxon was not included in Ramsay and Cairns (2004).

***Campylopus excurrens* Dixon (Leucobryaceae)**

Some collections of *Campylopus laxitextus* have been redetermined as *C. excurrens* (Klazenga 2012a), a new record for the Wet Tropics. *Campylopus excurrens* was previously in synonymy with various species including *Campylopus sinensis* (Müll. Hal.) J-P. Frahm (as recorded in Ramsay and Cairns 2004) but Niels Klazenga has re-interpreted *C. excurrens* as a distinct species (*Weber B-32407*, CANB 302238.1).

***Clastobryophilum balansaeum* (Besch.) Broth. (Sematophyllaceae)**

This species, collected from a tree overhanging Boulder Creek near Alligators Nest, Tully in 2014, was reported as a new genus and species record for Australia by Cairns and Meagher (2014). The species was previously thought to be endemic to New Caledonia (O'Shea 2000).

***Entodontopsis pygmaea* (Paris & Broth.) W.R. Buck & Ireland (Stereophyllaceae)**

This glossy epiphyte was found in the Wet Tropics at Lake Barrine on the Atherton Tablelands in 2014 (Meagher and Cairns 2014) but has since been found at two other well-separated sites in the Wet Tropics (Cairns and Meagher 2017). These records are also a significant range extension for the species, which is otherwise known from Vietnam, China, Thailand, India and Nepal. Ramsay and Cairns (2004) previously listed *Stereophyllum radiculosum* (Hook.) Mitt. as the only species of Stereophyllaceae known from the Wet Tropics bioregion.

***Entosthodon radians* (Hedw.) Müll. Hal. (Funariaceae)**

Although not reported in Ramsay and Cairns (2004), this widespread Australasian species was first collected in the Wet Tropics by I.G. Stone in 1982 at Little Millstream Falls near Ravenshoe (*Stone 19813*, MEL 2246059A), and in 1983 in 'Garrawalt National Park' (presumably Garrawalt Creek, Wallaman Falls Section of Girringun National Park) near Ingham (*Stone 21235*, MEL 2258550A). In 2013, a small population of fertile plants were found by D. Meagher growing in a soil niche in a rock crevice at Puzzle Creek, Tara Vale, west of Paluma,

near the border of the bioregion with Einasleigh Uplands (Meagher WT-320, BRI AQ1000886). This autoicous species may be under-collected in the Wet Tropics.

***Fabronia scottiae* Müll. Hal. (Fabroniaceae)**

A specimen of *Fabronia scottiae* collected at Millstream Falls in 1992 (Coveny 16825, NSW 777572) was not identified until 2010. It has since been collected from several additional sites in the Wet Tropics (Meagher and Cairns WT-270, BRI AQ1000884; WT-364, BRI AQ1000880; WT-656, BRI AQ1000885). The nearest other locality is in southern Queensland.

***Fissidens beckettii* Mitt. (Fissidentaceae)**

Known from a single collection from Paluma at the southern end of the Wet Tropics (Stone 55065, MEL 2045617A), this species also occurs in central and south-east Queensland, NSW, ACT and Norfolk Island, and is also known from India, across to Southeast Asia, Indonesia, China, Japan and New Caledonia. *Fissidens beckettii* was not included in the Wet Tropics 2004 list, nor by Seppelt and Stone (2016).

***Fissidens biformis* Mitt. (Fissidentaceae)**

Fissidens angustifolius Sull. as listed in Seppelt and Stone (2016), is now included in *F. biformis* by Bruggemann-Nannenga (2016). *Fissidens angustifolius* is known from a single collection from the northern Wet Tropics (Streimann 30911, CBG 8909945.1), and *F. biformis* is recorded in the Wet Tropics from Hinchinbrook Island (Stone 24917, MEL 2326439A). The species was reported from Queensland in Streimann and Klazenga (2002) but not listed in Ramsay and Cairns (2004).

***Fissidens bogoriensis* M.Fleisch. (Fissidentaceae)**

According to Ramsay and Cairns (2004), *F. bogoriensis* was considered by I.G. Stone not to occur in Australia. Two records are listed in AVH – one in the Wet Tropics (Stone 18993, MEL 2265514A), and the other close to the northern Wet Tropics border with the Einasleigh Uplands (Stone 19240, MEL 225334B), both confirmed by Seppelt and Stone (2016). *Fissidens bogoriensis* is also known from Malesia, Japan, China, Taiwan and the Philippines.

***Fissidens crenulatus* var. *elmeri* (Broth.) Z.Iwats. & Tad.Suzuki (Fissidentaceae)**

Fissidens crenulatus was listed for Queensland by Streimann and Klazenga (2002) and the Wet Tropics by Ramsay and Cairns (2004), but this variety was listed by Seppelt and Stone (2016) as a new record for Australia and the Wet Tropics. The basis for this was a specimen collected by I.G. Stone at Dalrymple Gap near Cardwell (Stone 19147, MEL 224523A), which R. Seppelt (*pers. comm.* 3 January 2019) has confirmed is *F. crenulatus* var. *elmeri*.

***Fissidens curvatus* var. *inclinabilis* (Müll. Hal. ex Dixon) Beever (Fissidentaceae)**

The species was listed in Ramsay and Cairns (2004) but this variety is a new record, identified from several collections made by I.G. Stone (24489, MEL 2322535A; 24836, MEL 2322647A) mostly from earth banks and rock crevices in shaded gullies in Wooroonooran National Park.

***Fissidens darwinianus* Catches. & I.G.Stone (Fissidentaceae)**

Fissidens darwinianus, previously reported from the Northern Territory by Streimann and Klazenga (2002), is newly recorded from two well-separated sites in north-east Queensland: Kirrama near Cardwell in the Wet Tropics (Stone 15001, MEL 2341897A), and Helenvale, south of Cooktown in the Einasleigh Uplands, close to the Wet Tropics boundary (Stone 19232, MEL 2225505A). As the plant is minute on shaded soil, it has likely been overlooked by collectors.

***Fissidens elegans* Brid. (Fissidentaceae)**

Uncommon in the Wet Tropics, this cosmopolitan species has been collected from rock and soil close to creeks and water falls (Stone 25933, MEL2341938B and Stone 25119, MEL 2326950A). It was not listed in Ramsay and Cairns (2004) and is a new record for Australia.

***Fissidens flaccidus* Mitt. (Fissidentaceae)**

Pursell (1997) placed *F. maceratus* Mitt. into synonymy with *F. flaccidus*, but Stone and Catcheside (2012) retained them as separate species. Neither species were listed for the Wet Tropics in Ramsay and Cairns (2004). Seppelt and Stone (2016) now accept Pursell's synonymy. *Fissidens flaccidus* has been collected from two sites in the Wet Tropics – from Davies Creek (Stone 15926, MEL 2227936A) and from Lake Eacham (Stone 25525, MEL 2310156A).

***Fissidens intromarginatulus* E.B.Bartram (Fissidentaceae)**

Iwatsuki and Mohamed (1987) treated *Fissidens intromarginatulus* as a synonym of *F. ceylonensis*, the latter of which was listed in Ramsay and Cairns (2004). However, the two species differ in leaf shape, costa, and habitat preferences (Seppelt and Stone 2016). Both species occur in the Wet Tropics – *F. intromarginatulus* on volcanic soils on stream banks to 750 m elevation (*Stone 25505*, MEL 2329005A; *Stone 18810*, MEL 2245036A) and *F. ceylonensis* on lateritic soils, at low elevations (Seppelt and Stone 2016).

***Fissidens linearis* Brid. var. *linearis* (Fissidentaceae)**

Widespread in eastern Australia and also known from central Australia, Lord Howe Island and Norfolk Island, this species was not reported by Ramsay and Cairns (2004) for the Wet Tropics. It differs from *Fissidens linearis* var. *obscurirete*, which is listed in Ramsay and Cairns (2004), by its shorter costa, usually ending just below the leaf apex and often obscured by papillose laminal cells (Seppelt and Stone 2016). Represented in the Wet Tropics by a single record from near Ravenshoe, collected in 1913 (*W.W.Watts Q474*, NSW 976385) and identified by I.G. Stone in 1990, *F. linearis* var. *linearis* was recognised for the Wet Tropics by Seppelt and Stone (2016).

***Fissidens oblongifolius* var. *palmerstonensis* (I.G.Stone) Beever & I.G.Stone (Fissidentaceae)**

Beever and Stone (1998) noted the resemblance of *Fissidens hyophilus* var. *palmerstonensis* I.G.Stone to *F. oblongifolius* var. *hyophilus* and made this new combination. It was listed for Queensland by Streimann and Klazenga (2002) but was overlooked by Ramsay and Cairns (2004). This variety is known only by the type collection from Wooroonooran National Park (*Stone 24487*, MEL 2341893A).

***Forsstroemia producta* (Hornsch.) Paris (Leptodontaceae)**

Previously known from south-east Queensland, *Forsstroemia producta* was collected by Heinar Streimann from the Cardwell Range in 1984 and determined by Johannes Enroth in 1994 (*Streimann 28564*, CBG 8406571) (Enroth 2012). It was overlooked in later checklists (Streimann and Klazenga 2002, Ramsay and Cairns 2004).

***Garovaglia powellii* Mitt. var. *muelleri* (Hampe) During (Ptychomniaceae)**

Only one species of *Garovaglia* – *G. elegans* subsp. *dietrichiae* – was listed for the Wet Tropics by Ramsay and Cairns (2004). However, they overlooked *G. powellii* var. *muelleri*, which is widespread in the Wet Tropics (During 1977) and listed for Queensland by Streimann & Klazenga (2002).

***Gemmabryum erythropilum* (M. Fleisch.) J.R.Spence & H.P.Ramsay (Bryaceae)**

Until recently this taxon was considered a synonym of *Bryum clavatum* Schimp. which was listed as *Gemmabryum clavatum* (Schimp.) J.R.Spence & H.P.Ramsay by Ramsay and Cairns (2004). *Gemmabryum clavatum*, now interpreted as *Imbribryum clavatum* (M.Fleisch.) J.R.Spence & H.P.Ramsay, is a species recognised as distinct from *G. erythropilum* (Spence and Ramsay 2013). *Gemmabryum erythropilum* was collected in 1968 by B.O. van Zanten at Mossman Gorge (NSW 899199, NSW 899190, NSW 899582) and Babinda Boulders (NSW 899583), and in 1989 by P.I. Forster at Mt Lewis (BRI AQ0522497). *G. erythropilum* has a palaeotropical distribution and is readily identified by plants with red tints, leaves with a long excurrent awn, red to orange pyriform or clavate rhizoidal gemmae, and short pyriform capsules.

***Gemmabryum inaequale* (Taylor) J.R.Spence & H.P.Ramsay (Bryaceae)**

This species was first reported from north Queensland by Spence and Ramsay (2006) based on a 1984 collection from Mareeba (Einasleigh Uplands). It was later collected from the Blencoe Falls area of Girringun National Park in the Wet Tropics bioregion (*Spence 5139*, NSW 409485). Its distribution in Australia is very disjunct and it occupies a wide range of habitats, from very dry to very wet. More than one taxon might therefore be involved; Spence and Ramsay (2006) noted that *Gemmabryum inaequale* belongs to a complex of poorly defined species that needs worldwide revision.

***Gemmabryum tenuisetum* (Limr.) J.R.Spence & H.P.Ramsay (Bryaceae)**

An uncommon species, known from Papua New Guinea, Victoria, the Central Queensland Coast bioregion, and from one 1988 collection from Broadwater Forest Park in the Wet Tropics (*Stone 2483*, MEL 2322643A), *Gemmabryum tenuisetum* was described by Spence and Ramsay (2005) based on *Bryum tenuisetum*. The species was not included by Ramsay and Cairns (2004) under the earlier name and is therefore a new record for the Wet Tropics.

***Grimmia laevigata* (Brid.) Brid. (Grimmiaceae)**

This cosmopolitan moss is known from Little Millstream Falls in the Wet Tropics, collected in 1982 by I.G. Stone (*Stone 19800*, MEL 2246051A, BRI AQ0874604; *Stone 19809*, MEL 2246057) and identified in 1996 by H.C. Greven. *Grimmia laevigata* is a pioneer of granitic rock (Greven 2000) and is common across southern Australia.

***Gymnostomum calcareum* Nees & Hornsch. (Pottiaceae)**

Collections of *Gymnostomum calcareum* by I.G. Stone in 1979 from Millstream Falls, near Ravenshoe, (*Stone 15660*, MEL 2315063B and *Stone 15686*, MEL 2310276A), the first records for the Wet Tropics, were identified by P. Sollman in 1997. The species was not listed in Ramsay and Cairns (2004) and is a new record for the bioregion.

***Hedwigidium integrifolium* (P.Beauv.) Dixon (Hedwigiaceae)**

A cosmopolitan moss, more common in southern Australia (Gilmore 2012a), *Hedwigidium integrifolium* is known in the Wet Tropics from Mt. Bartle Frere, collected in 1974 by D. Norris (42893, BRI AQ0733938, *conf.* A. Franks 2018). The species was not listed in Ramsay and Cairns (2004) and the Wet Tropics record is not shown on the distribution map for the species (Gilmore 2012b). *Hedwigidium integrifolium* is a new record for the bioregion.

***Holomitrium cylindraceum* (P.Beauv.) Wijk & Margad. (Dicranaceae)**

This species was identified recently from a collection made in 2017 on Mt Finnigan (*Renner 8062a*, BRI AQ1000877) and is reported here as new to Australia. It is a circumglobal species with a distribution from southern Africa to the eastern Pacific and is known from Papua New Guinea (AVH records) and New Caledonia (Thouvenot and Bardat 2010).

***Isopterygiopsis pulchella* (Hedw.) Z.Iwats. (Plagiotheciaceae)**

Two collections of *Isopterygiopsis pulchella* have been reported from the Wet Tropics (*Watts Q638*, NSW 245970, and *Coveny 16772*, NSW 775087). This cosmopolitan moss is more common in southern Australia (Iwatsuki and Ramsay 2009; Ramsay 2012e) and these are the first records for the Wet Tropics.

***Leucoloma circinatulum* E.B.Bartram (Dicranaceae)**

Ramsay and Cairns (2004) noted that *Leucoloma* included ‘various undetermined species’ in the Wet Tropics. Klazenga (2012b) reported *L. circinatulum* from two records in Queensland – one from the Wet Tropics (*Stone 8994*, MEL 2182768A) and the other from Cape York Peninsula. It differs from the other Wet Tropics *Leucoloma* species – *L. molle* (Müll. Hal.) Mitt. – in the thickening of alar cell walls. Lateral and end walls of alar cells are equally thickened and leaf margins are entire in *L. circinatulum*, whereas in *L. molle* only lateral walls of alar cells are strongly thickened and leaf margins are serrulate in the upper 15–20%.

***Macromitrium brevicaule* (Besch.) Broth. (Orthotrichaceae)**

Macromitrium brevicaule was collected by Klazenga at Jourama Falls at the southern end of the bioregion (*Klazenga 6342*, BRI AQ0744281). The species is more common in south-east Queensland, eastern New South Wales and eastern Victoria, and is a new record for the Wet Tropics.

***Macromitrium erythrocomum* H.P.Ramsay, Cairns & Meagher (Orthotrichaceae)**

This new species of *Macromitrium* was recently described from the Bellenden Ker Range (Ramsay *et al.* 2017). *M. erythrocomum* was also collected on Thornton Peak in 2017 (*Renner 8372*, NSW 1053512).

***Macromitrium ligulare* Mitt. (Orthotrichaceae)**

Although in their treatment of *Macromitrium ligulare*, Vitt and Ramsay (2012a) did not specify north Queensland in its distribution, the online distribution map (Vitt and Ramsay 2012b) shows *M. ligulare* in the Wet Tropics. Its presence there is further supported by the many records identified by Dale Vitt as listed in AVH. Its absence in the 2004 list of Ramsay & Cairns is corrected here and *Macromitrium ligulare* is added to the present list.

***Meteoriopsis undulata* Horik. & Nog. (Meteoriaceae)**

This species was reported as new to the Australian flora by Meagher and Cairns (2016), based on specimens on a rotting vine and on a tree trunk from two widely separated sites in the Wet Tropics, it is otherwise known from Japan, Taiwan and China.

***Papillaria zeliflexicaulis* Streimann (Meteoriaceae)**

Papillaria zeliflexicaulis is similar to and has been confused with *P. flexicaulis* (Wilson) A. Jaeger, but has smaller leaves and a thicker costa (Streimann 1991). It is known from Kirrama National Park (Stone 14815A, MEL 2221166A) and from Millstream Falls (Coveny 16820, NSW 777180) in the Wet Tropics. It is more common in south-east Queensland and New South Wales.

***Philonotis slateri* (Hampe) A. Jaeger (Bartramiaceae)**

Recorded from several sites in south-eastern Australia, the earliest collection of *P. slateri* from the Wet Tropics in Australian herbaria is that of H. Flecker in 1937 from Campbells Creek, near Cairns (CANB 362179). This record was inadvertently not included in the Ramsay and Cairns (2004) list. The species was recently found in Tully Gorge National Park (Cairns WT-614A, BRI AQ858162) (Cairns and Meagher 2017). An additional specimen was identified in 2017 from a collection made in 1994 from very wet soil near a creek close to Mt Lewis (Coveny 17072, NSW 786425).

***Plagiobryoides cellularis* (Hook.) J.R. Spence (Bryaceae)**

Plagiobryoides cellularis is known from only two collections in the Wet Tropics (C. Wild s.n., NSW 429924; Stone 23194, MEL 2329490A) and from scattered sites Australia-wide. This pantropical species was previously known as *Bryum cellulare* Hook. However, Spence & Ramsay (1996) initially recognised *B. cellulare* and its close allies as species of *Plagiobryum*, but the formal transfer was not made until after the publication of Ramsay & Cairns (2004). Spence and Ramsay (2006) subsequently transferred *B. cellulare* to *Plagiobryum*, but later, Spence (2009) identified differences from *Plagiobryum* and described a new genus, *Plagiobryoides*, which includes *P. cellularis*.

***Pleuridium nervosum* (Hook.) Mitt. (Ditrichaceae)**

This species is common in southern Australia (see Catcheside 1980 for illustrations) and was first recorded for the Wet Tropics by Cairns and Meagher (2017), growing on compacted soil on Mt Lewis Road, elevation 996 m (Meagher WT-077A, BRI AQ 858151).

***Pseudotaxiphyllum pohliaecarpum* (Sull. & Lesq.) Z. Iwats. (Plagiotheciaceae)**

Pseudotaxiphyllum pohliaecarpum was first reported for Australia by Iwatsuki and Ramsay (2009) based on two collections from New South Wales, the earliest from the Blue Mountains in 1916 (Watts 10907, NSW 245625) and another more recently from New England National Park in 1991 (Streimann 47736, CBG 9107782). The first records for the Wet Tropics were collected by D. Meagher and A. Cairns from an earth bank at Lake Barrine on the Atherton Tableland (WT-378, BRI AQ858152), and by Meagher on rock on the western ridge of the Bellenden Ker Range in 2016 (WT-1173, BRI AQ858153) (Cairns and Meagher 2017).

***Rhynchostegium brevinerve* Huttunen & Ignatov (Brachytheciaceae)**

Huttunen and Ignatov (2010) investigated the relationship between the terrestrial moss genus *Rhynchostegium* and the aquatic moss genus *Platyhypnidium*. Molecular studies showed that the plant originally identified as *Platyhypnidium muelleri* from Fishery Falls on the slopes of Bellenden Ker Range (duplicate: Cairns and Meagher B-324, BRI AQ0649282) is a new endemic Australian species, *Rhynchostegium brevinerve* Huttunen & Ignatov. (See also discussion of *Torrentaria muelleri* under Excluded Taxa.)

***Rosulabryum rubens* (Hedwig) J.R. Spence (Bryaceae)**

This species, previously known as *Gemmabryum rubens* (Hedwig.) J.R. Spence & H.P. Ramsay, was transferred to *Rosulabryum* by Spence and Ramsay (2013). Its presence in the Wet Tropics is based on two collections from Mt Lewis in 1968 (Zanten 681136, NSW 909362 and Zanten 681191A, NSW 855039) recently identified by J.R. Spence.

***Solmsiella biseriata* (Austin) Steere (Erpodiaceae)**

Pursell (2017) reviewed the largely southern hemisphere family Erpodiaceae based on morphological characteristics and reintroduced a restricted circumscription for the genus *Erpodium*, limiting it to two species that occur in the Americas and West Indies. Other species of *Erpodium* have been transferred to new genera (see *Venturiella* below). The genus *Solmsiella* includes Erpodiaceae with dimorphic leaves that resemble a leafy liverwort.

Formerly known as *Erpodium biseriatum* (Austin) Austin, *S. biseriata* was first recorded for the Wet Tropics in 2001 (BRI AQ0834346; CANB 640652.1) but was not included in Ramsay and Cairns (2004). The species is also known from the Central Queensland Coast bioregion and from Arnhem Land, Northern Territory.

***Symphysodontella splendens* (Reinw. & Hornsch.) Touw & Magill (Pterobryaceae)**

A new record for Australia, this lithophytic species was identified recently from a few fronds collected by D. Meagher (1291, BRI AQ1000874) in 2000 from Wrights Creek, Crater Lakes National Park (Meagher & Cairns, Telopea, submitted). An attempt to collect more material was made in 2018 but the creek bed wherein the original collection was made had been severely scoured by flood waters and the species was not found.

***Syrrhopodon gardneri* (Hook.) Schwägr. (Calymperaceae)**

Previously known only from Arnhem Land, NT, this specimen was collected by Bernard van Zanten (*Zanten 681001*, NSW 896864) in 1968 from the bark of an isolated tree at Babinda Boulders, but the specimen was only recently identified. Unlike other Australian *Syrrhopodon* species, it may be distinguished by its abundant dark red rhizoids, serrate leaf shoulders, and the absence of elongate hyaline marginal cells (Reese and Stone 2012).

***Taxithelium lindbergii* (A. Jaeger) Renauld & Cardot (Pylaisiadelphaceae)**

Previously known from Madagascar, east across to Southeast Asia, and the Pacific islands (Câmara 2011a), this species was first identified in 2017 from collections from Mt Finnigan (*Renner 8162*, NSW 1053507 and *Renner 8166*, NSW 1053511) and is reported here as new to Australia. The species was also collected on Thornton Peak (*Renner 8381*, BRI AQ1000887).

***Thamniopsis utacamundiana* (Mont.) W.R.Buck (Pilotrichaceae)**

Buck (1987) recognised that Hookeriaceae s.l. is heterogeneous and transferred Old World species to *Thamniopsis*, including *Hookeria utacamundiana* (the basionym for *Hookeriopsis utacamundiana*). He distinguished between *Thamniopsis*, with a well-defined hyalodermis in the stem and basal laminal cells different from apical cells, and *Hookeriopsis*, in which the hyalodermis is absent or rare and the leaves have homogenous areolation. Streimann (2000) did not describe or illustrate stem anatomy of Australian *H. utacamundiana*, although he described and illustrated laminal cells as ‘narrowly-rectangular...75–100 µm’, compared with ‘hexagonal to oval-hexagonal upper laminal cells, 24–30(–53) µm’. This would mean that Australian *Hookeriopsis utacamundiana* should be known as *Thamniopsis utacamundiana*. Collections from the Wet Tropics – from Mt Lewis and from Paluma in 2001 (*S. Pócs 01084/K-B*, BRI AQ0875915 and *S. Pócs 1110/X*, BRI AQ0834518) were later identified as *Thamniopsis* by D. Meagher, and two other specimens from the Wet Tropics studied by A. Cairns have a distinct hyalodermis and are therefore referable to *Thamniopsis*. We accept the name *Thamniopsis utacamundiana* for the Wet Tropics, pending a review of herbarium specimens currently identified as *H. utacamundiana*.

***Toloxis intricata* (Mitt.) L.Y.Pei, Y.Jia & Y.F.Wang (Meteoriaceae)**

Streimann (1991) reported *Papillaria intricata* (Mitt.) C. Muell. & Broth. based on two collections from the Central Queensland Coast bioregion (in H). The only record of the taxon from the Wet Tropics in Australian herbaria is from a single collection by I.G. Stone from a felled tree on the Palmerston Highway, identified by N. Klazenga in 2001 (*Stone 15233*, MEL 2346842A). However, Ramsay and Cairns were not aware of this record when preparing the 2004 checklist. While revising the genus *Meteorium*, Pei *et al.* (2011) noted that *Meteorium intricatum* Mitt. (basionym to *P. intricata*) was morphologically different from other *Papillaria* species and showed characteristics of the genus *Toloxis* as outlined by Buck (1994). Pei *et al.* (2011) transferred *M. intricatum* to *Toloxis intricata* (Mitt.) L.Y.Pei, Y.Jia & Y.F.Wang.

***Trachyloma indicum* var. *novae-guineae* (Müll. Hal.) N.G.Mill. & Manuel (Trachylomataceae)**

This new record is based on specimens collected from Wooroonooran National Park in 1979 (*Stone 15237*, MEL 2223463A), and from the upper slopes of North Peak, Bartle Frere in 1974 (*Norris 42886*, BRI AQ0733984), Mt Lewis and the Atherton Tablelands by A. Cairns and D. Meagher (*WT-291*, *WT-293*; *WT-376* BRI) and Mt Finnigan by M. Renner (7991, NSW 1053503). All other collections of *Trachyloma indicum* from the Wet Tropics seen by D. Meagher belong to *T. indicum* var. *indicum* (D. Meagher, unpublished data).

***Vesicularia montagnei* (Schimp.) Broth. (Hypnaceae)**

Vesicularia montagnei is known in the Wet Tropics from collections by I.G. Stone from Conn Creek near Cardwell (*Stone 16319*, MEL 2331444A and *Stone 16386*, MEL 2331447A), and from Hinchinbrook Island (*Stone 15004*, MEL 2331429A), but these collections were identified in 2008 (by Z. Iwatsuki) and therefore not included in Ramsay and Cairns (2004).

***Weissia edentula* Mitt. (Pottiaceae)**

Collected in 1986 from a shaded boulder in Kirrama State Forest (now part of Girringun National Park) (*Streimann* 36942, CANB 734458.1), the specimen was not identified as *Weissia edentula* until 2008. It was also collected in 1998 from an exposed rock face on the Cardwell Range (*Streimann* 61835, CBG 911472.1, MEL 2338884A, BRI AQ0873035) but that record was not included in the earlier Wet Tropics list (Ramsay and Cairns 2004). *Weissia edentula* is known from Queensland, New South Wales, and South Australia, and from India and Sri Lanka, across Southeast Asia, China, Japan, Papua New Guinea and the Philippines (Norris and Koponen, 1989).

***Weissia perpusilla* (Müll. Hal.) I.G.Stone (Pottiaceae)**

This species was collected by I.G. Stone in 1982 at Little Millstream Falls near Ravenshoe (*Stone* 19807, MEL 2314913A) and identified in 1999 by P. Sollman. Several other I.G. Stone collections of *W. perpusilla* from the Wet Tropics are in MEL but the species was not included in the Ramsay & Cairns (2004) list.

Taxonomic and nomenclatural changes

***Acroporium hyalinum* (Reinw. ex Schwägr.) Mitt. var. *hyalinum* (Sematophyllaceae)**

Acroporium stramineum (Reinw. & Hornsch.) M.Fleisch. was synonymised under the older name *Acroporium hyalinum* by Chua *et al.* (2018), based on morphological data. They accepted three varieties, of which only var. *hyalinum* occurs in Australia. Leaves of var. *hyalinum* are described as erecto-patent, although Chua *et al.* (2018) comment that leaves of this variety are occasionally imbricate as seen in var. *turgidum*, but this may be accounted for by habitat humidity. They suggest molecular studies would be useful to clarify relationships between varieties.

***Anomobryum auratum* (Mitt.) A.Jaeger (Bryaceae)**

The genera *Anomobryum* and *Bryum* were synonymised by Spence and Ramsay (2002) based on their morphological similarity. However, molecular studies (Pedersen and Hedenäs 2005, Pedersen *et al.* 2007) showed them to be unrelated. Spence and Ramsay (2013) subsequently returned *Bryum auratum* to *Anomobryum*. Listed in Ramsay and Cairns (2004) as *B. auratum*, the species is the only one for *Anomobryum* in Australia. It is rare and has not yet been located with sporophytes.

***Campylopus introflexus* (Hedw.) Brid. (Leucobryaceae)**

Campylopus flindersii Catcheside & J.-P.Frahm, recorded for the Wet Tropics by Ramsay and Cairns (2004), was placed in synonymy with *C. introflexus* by Klazenga (2012a), which is widespread and common throughout Australia.

***Campylopus periauriculatus* (Broth.) J.-P.Frahm. (Leucobryaceae)**

Campylopus robillardii Besch. var. *periauriculatus* (Broth.) J.-P.Frahm was listed in Ramsay and Cairns (2004), but the variety was treated by Klazenga (2012a) as a distinct species. We accept this view here.

***Campylopus torquatus* Mitt. (Leucobryaceae)**

Campylopus pyriformis (Schultz) Brid., listed in Ramsay and Cairns (2004), has been placed into synonymy with *Campylopus torquatus* Mitt. by Stech and Wagner (2005). Klazenga (2012a) accepted this synonymy and we therefore follow it here.

***Circulifolium exiguum* (Bosch & Sande Lac.) S.Olsson, Enroth & D.Quandt (Neckeraceae)**

Based on sequence data, Olssen *et al.* (2010) showed the genus *Homali dendron* to be polyphyletic. *Homali dendron exiguum* (Bosch & Sande Lac.) M.Fleisch. (included in the Ramsay and Cairns 2004 list) and *H. microdendron* (recorded for Southeast Asia) were found to be phylogenetically isolated from other *Homali dendron* species and were placed in the new genus *Circulifolium* S.Olsson, Enroth & D.Quandt. to resolve the resultant polyphyly of *Homali dendron* (Olsson *et al.* 2010).

***Clastobryum cuculligerum* (Sande Lac) Tixier var. *dimorphum* (I.G. Stone) B.C.Tan, T.J.Kop. & D.H.Norris (Pylaisiadelphaceae)**

Previously considered an Australian endemic, *Clastobryum dimorphum* (I.G.Stone) B.C.Tan, Z.Iwats. & D.H.Norris was reduced to a variety of *Clastobryum cuculligerum* by Tan *et al.* (2011).

***Daltonia marginata* Griff. (Daltoniaceae)**

Majestyk (2011) revised genus *Daltonia* for the Americas and synonymised *Daltonia contorta* Müll. Hal., listed in Ramsay and Cairns (2004), with *D. marginata*, and we agree with this view. The type of *D. marginata* was collected in India (Griffith 1843).

***Dicranoloma austroscoparium* (Müll.Hal. ex Broth.) Watts &Whitel. (Dicranaceae)**

Dicranoloma watsii was reported for the Wet Tropics by Ramsay & Cairns (2004), but it had been synonymised under *D. austroscoparium* by Klazenga (2003) shortly before the 2004 list was published.

***Fissidens bryoides* Hedw. (Fissidentaceae)**

Seppelt and Stone (2016) questioned whether *F. bryoides* var. *schmidtii* (listed in Ramsay and Cairns 2004) occurs in Australia and included only *F. bryoides* (without specifying a variety) in their treatment of *Fissidens* for Australia. They noted that Beever and Stone (1999) and Pursell (2007) described the species as monoicous, whereas Li and Iwatsuki (2001) suggested the variety is dioicous. R. Seppelt (pers. comm. May 18, 2018) advised that *F. bryoides* is a variable taxon with a plethora of varieties, requiring good and fruiting material to ascertain to a variety with any certainty. The two collections identified as var. *schmidtii* by I.G. Stone (Stone 25483, MEL 2327122A; Stone 25529, MEL 2329039B) are both sterile and thus cannot be confirmed to variety without further investigation. AVH also records another collection of *F. bryoides* (no variety) from the Wet Tropics Cassowary Coast (Stone 18788, MEL 2243983A).

***Fissidens leptocladus* Müll. Hal. ex Rodway (Fissidentaceae)**

Seppelt and Stone (2016) found *Fissidens patulifolius* Dixon to be indistinguishable from *F. leptocladus* Müll. Hal. ex Rodway so synonymised *F. patulifolius* under *F. leptocladus*. Both species were listed in Ramsay and Cairns (2004).

***Fissidens pellucidus* Hornsch. (Fissidentaceae)**

Ramsay and Cairns (2004) listed *Fissidens crassinervis* Sande Lac. and *F. holstii* Broth. for the Wet Tropics, but those species had been synonymised with *F. pellucidus* Hornsch. by Norris and Koponen (1987), which had also been reported from the Wet Tropics by Ramsay and Cairns (2004).

***Fissidens perpusillus* Wilson ex Mitt. (Fissidentaceae)**

Seppelt and Stone (2016) synonymised *Fissidens punctulatus* Sande Lac., reported from the Wet Tropics by Ramsay and Cairns (2004), with *F. perpusillus*, based on illustrations of *F. brevilingulatus* Bartr. (Iwatsuki and Mohamed 1987), which is a synonym of *F. punctulatus* (Tan and Iwatsuki 1989).

***Fissidens submarginatus* Bruch. (Fissidentaceae)**

Fissidens cambewarrae Dixon, previously reported from the Wet Tropics, was synonymised with *F. submarginatus* by Seppelt and Stone (2016). Further collections of *F. submarginatus* from the Wet Tropics have been identified recently (MEL 2265515A–2265518A).

***Fissidens thorsbornei* (I.G.Stone) Brugg.-Nann. (Fissidentaceae)**

This species was originally described as *Nanobryum thorsbornei* by Stone (1982) and listed under that name in Ramsay and Cairns (2004). The transfer of this species to *Fissidens* by Bruggeman-Nannenga (1988) is accepted here.

***Gemmabryum tuberosum* (Mohamed & Damanhuri) J.R.Spence & H.P.Ramsay (Bryaceae)**

Spence and Ramsay (2013) made the new combination *Gemmabryum tuberosum*, which was listed in Ramsay and Cairns (2004) as *Rosulabryum tuberosum*.

***Imbribryum australe* (Hampe) J.R.Spence & H.P.Ramsay (Bryaceae)**

This species was reported for the Wet Tropics by Ramsay and Cairns (2004) as *Gemmabryum australe* (Hampe) J.R.Spence & H.P.Ramsay. However, Spence and Ramsay (2013) transferred the relatively larger species of *Gemmabryum* with elongate, evenly foliate stems and strongly imbricate leaves to *Imbribryum*, retaining the name *Gemmabryum* for smaller species that produce rhizoidal tubers or leaf axil bulbils.

***Isopterygium albescens* (Hook.) A. Jaeger (Hypnaceae)**

Iwatsuki and Ramsay (2009, 2012) revised *Isopterygium* in Australia, returning the genus to family Hypnaceae and recognising only one species, *Isopterygium albescens* (Hook.) A. Jaeger. The following species listed in Ramsay and Cairns (2004) have been placed in synonymy with *I. albescens*: *Isopterygium*

minutirameum (Müll. Hal.) A.Jaeger var. *brevifolium* (M.Fleisch.) E.B.Bartram, *Isopterygium minutirameum* (Müll.Hal.) A.Jaeger var. *minutirameum*, and *Isopterygium novae-valesiae* Broth., and have been deleted from the updated list.

***Leucobryum aduncum* var. *scalare* (Müll. Hal. ex M. Fleisch.) A. Eddy (Leucobryaceae)**

Leucobryum ballinense Broth. and *L. subchlorophyllosum* Hampe, both previously reported from the Wet Tropics, were synonymised with *L. aduncum* var. *scalare* (Klazenga 2012d), which had also been reported from the Wet Tropics by Ramsay and Cairns (2004).

***Meiothecium intextum* Mitt. (Sematophyllaceae)**

Meiothecium tenellum Broth. & Paris, reported from the Wet Tropics by Ramsay and Cairns (2004), is now in synonymy with *M. intextum*, together with *M. brotheri* Watts (O'Shea 2007).

***Mniodendron comatulum* Geh. ex Broth. (Hypnodendraceae)**

Formerly known as *Hypnodendron comatulum* (Geh. ex Broth.) Touw, this taxon, which is endemic to North Queensland, was returned to its original genus *Mniodendron* by Bell *et al.* (2007).

***Neckeromnion lepineanum* (Mont.) S.Olssen, Enroth, Huttunen & D.Quandt (Neckeraceae)**

Phylogenetic analyses by Olssen *et al.* (2016) of the genera *Neckeropsis* and *Himantocladium* identified five well-supported monophyletic lineages, four of which they recognised as new genera. Of these, the *Neckeromnion* clade is represented in the Wet Tropics by *Neckeromnion lepineanum*, a new combination for *Neckeropsis lepineana* (Mont.) M.Fleisch.

***Neckeropsis cyclophylla* (Müll. Hal.) S.Olssen, Enroth & D.Quandt (Neckeraceae)**

This species was known previously as *Himantocladium cyclophyllum*. Olssen *et al.* (2010) showed it to be closer to *Neckeropsis* and transferred it to that genus.

***Oedycladium rufescens* var. *purpuratum* (Mitt.) Klazenga (Myuriaceae)**

Klazenga (2012e) made a new combination by transferring *Myurium rufescens* subsp. *purpuratum* (Mitt.) Maschke to *Oedycladium rufescens* var. *purpuratum*. This genus is uncommon in the Wet Tropics although both *Oedycladium rufescens* (Reinw. & Hornsch.) Mitt. var. *rufescens* (Renner 8452, BRI, NSW) and *O. rufescens* var. *purpuratum* (Renner 8459 and Renner 8492, BRI, NSW) were among recent collections from Thornton Peak, north Queensland. This name change was anticipated in Ramsay and Cairns (2004) but no combination was available. The genus *Myurium* is deleted from the updated list.

***Pterobryopsis australina* (Mitt.) N.-N.Yu & Y.Jia (Pterobryaceae)**

Yu and Jia (2012) transferred *Calyptothecium australinum* (Mitt.) Paris to *Pterobryopsis australinum* (Mitt.) N.-N.Yu & Y.Jia based on the absence of auriculate alar regions (present in *Calyptothecium*) and the morphology of basal leaf cells (rhomboidal with thin walls in *Calyptothecium* and subquadrate or transversely rectangular with thick walls in *Pterobryopsis*). The epithet *australinum* used by Yu and Jia (2012) in *Pterobryopsis* is an orthographic error and should be corrected to *australina*.

***Powellioopsis integra* (Dixon) Zanten (Racopilaceae)**

Powellia breviseta Mitt., listed in 2004, has been placed in synonymy with *Powellioopsis integra* (Dixon) Zanten (van Zanten 2008). It is known from the Australian Wet Tropics, Fiji, Papua New Guinea, the Philippines and Malaysia. The species is morphologically similar to *Racopilum cuspidigerum*, differing mainly in the laminal cells: bulging on both sides in *P. integra*, but smooth or with a central mammilla in *R. cuspidigerum*. Leaves of *P. integra* tend to be undulate, and the plants are more yellowish and more closely attached to the substrate compared with *R. cuspidigerum*.

***Radulina borbonica* (Bél.) W.R.Buck (Sematophyllaceae)**

In a revision of the genus *Radulina*, *R. hamata* (Dozy & Molk.) W.R.Buck & B.C.Tan (previously reported from the Wet Tropics) was transferred to synonymy with *R. borbonica* by O'Shea (2006).

***Rhodobryum graeffeanum* (Müll. Hal.) Paris (Bryaceae)**

Australian species of *Rhodobryum* have previously been considered to be *R. aubertii* (Schwägr.) Ther., an otherwise South African species. However, Spence and Ramsay (2019, submitted) consider Australasian *Rhodobryum* to be the palaeotropical species *Rhodobryum graeffeanum*, which is the name accepted here.

***Solmsiella solmsiellacea* (Müll. Hal. & Broth.) Pursell (Erpodiaceae)**

Listed as *Erpodium solmsiellaceum* (Müll. Hal. & Broth.) I.G.Stone in Ramsay and Cairns (2004), but since transferred to *Solmsiella* by Pursell (2017).

***Taxithelium leptosigmatum* (Müll. Hal. ex Geh.) Paris (Pylaisiadelphaceae)**

Taxithelium merrillii Broth., listed by Ramsay and Cairns (2014) for the Wet Tropics, was synonymised with *T. leptosigmatum* (Müll. Hal. ex Geh.) Paris by Câmara (2011b).

***Touwia elliptica* (Bosch & Sande Lac) S.Olsson, Enroth & D.Quandt (Neckeraceae)**

Molecular studies based on one specimen of *Touwia laticostata* from the Wet Tropics (Olssen *et al.* 2010) showed *Thamnobryum ellipticum* (Bosch & Sande Lac.) W.Schultze-Motel to belong to the genus *Touwia*. *Thamnobryum pandum* and *T. pumilum*, which also occur in the Wet Tropics, were not included in the Olssen *et al.* (2010) study and remain in our list.

***Trematodon baileyi* Broth. and *T. longescens* Müll.Hal. (Bruchiaceae)**

These two former Australian endemics, recorded from the Wet Tropics by Ramsay and Cairns (2004), were reduced to synonymy with *T. longicollis* Michx. by Ramsay *et al.* (2018b).

***Trismegistia lancifolia* (Harv.) Broth. var. *australiana* H. Akiy. (Pylaisiadelphaceae)**

This species was listed in Ramsay and Cairns (2004) as *Trismegistia rigida* but was reduced to a variety of *T. lancifolia* by Akiyama (2010) (see Ramsay 2012c, 2012d).

***Venturiella coronata* subsp. *australiensis* (I.G.Stone) Pursell (Erpodiaceae)**

Genus *Venturiella* includes species formerly in *Erpodium* with smooth or infrequently unipapillose laminal cells (Pursell 2017). *Venturiella coronata* was previously known as *Erpodium coronatum* (Hook.f. & Wilson) Mitt. var. *australiense* (I.G.Stone) I.G.Stone.

***Venturiella hodgkinsoniae* (Hampe & Müll. Hal.) Pursell (Erpodiaceae)**

Formerly known as *Erpodium hodgkinsoniae* Hampe & Müll. Hal., this species was transferred to *Venturiella* by Pursell (2017).

***Warburgiella cupressinoides* Müll. Hal. ex Broth. (Sematophyllaceae)**

In their revision of *Warburgiella* for Australia, Ramsay *et al.* (2004) and Ramsay (2012a) commented that *Warburgiella leptorhynchoides* (Mitt.) M.Fleisch. was often confused with *W. cupressinoides*. They considered the report of *W. cupressinoides* by Bartram (1952) from Cape York Peninsula to be a misinterpretation of *W. leptorhynchoides*, and therefore excluded *W. cupressinoides* from the Australia flora. In more recent studies by Tan *et al.* (2017) for Papua New Guinea, *W. leptorhynchoides* and *W. cupressinoides* are regarded as conspecific, and *W. leptorhynchoides* is synonymised under *W. cupressinoides*.

***Warburgiella leucocytus* (Müll. Hal.) B.C.Tan, W.B.Schofield & H.P.Ramsay (Sematophyllaceae)**

Warburgiella macrospora (Dixon & Sainsb.) B.C.Tan, W.B.Schofield & H.P.Ramsay was reported from the Wet Tropics by Ramsay *et al.* (2004: fig. 30-5) but was inadvertently omitted by Ramsay and Cairns (2004). Since then, Fife (2012) has synonymised *W. macrospora* with *W. leucocytus*, which had been listed by Ramsay and Cairns (2004).

***Weissia balansae* (Müll. Hal.) R.H. Zander (Pottiaceae)**

Weissia platystegia (Dixon) A.Eddy, listed in Ramsay and Cairns (2004), has been synonymised with *W. balansae* (Sollman 2004).

Uncertain records

***Campylopus clemensiae* E.B.Bartram (Leucobryaceae)**

Collected near Ravenshoe in 1913 by W.W. Watts (NSW 226242) and identified by J-P. Frahm (Frahm 1994, Frahm *et al.* 1985), this specimen was listed by Klazenga (2012a) as requiring confirmation.

***Dawsonia superba* Grev. var. *pulchra* Zanten (Polytrichaceae)**

Recorded from south-east Queensland, New South Wales, Victoria and Tasmania, and included in Ramsay and Cairns (2004) as occurring in subregions 4 (Atherton) and 9 (Daintree–Bloomfield), we could find no Australian herbarium records for this species in the Wet Tropics. Specimens collected by W.B. Schofield from Tinaroo Dam Forest Drive (*Schofield* 8026, UBC B52633) and from The Crater National Park (now Mt Hypipamee NP) (*Schofield* 80274, UBC B52699) were examined by Olivia Lee at UBC and found to be *D. polytrichoides*. The whereabouts of the Daintree–Bloomfield specimen is unknown, but until it can be located the record must be considered doubtful.

***Ectropothecium* species (Hypnaceae)**

Four species of *Ectropothecium* were listed in Ramsay and Cairns (2004): *E. moritzii* A. Jaeger, *E. riparioides* E.B.Bartram, *E. umbilicatum* (Müll. Hal.) Paris var. *umbilicatum* and *E. zollingeri* (Müll. Hal.) A.Jaeger. Records of a number of other species of *Ectropothecium* from the Wet Tropics are shown in AVH. However, these records have not been formally published and the genus has not been treated for Australia or nearby regions. The following is a list of possible additional species in the Wet Tropics that need verification.

Ectropothecium condensatum Broth. & Watts

Ectropothecium cupressinatum Broth.

Ectropothecium cyathothecium (Müll. Hal.) Broth.

Ectropothecium eccremocladum (Besch.) Broth.

Ectropothecium incubans (Reinw. & Hornsch) A.Jaeger

Ectropothecium leucochlorum (Hampe) Broth.

Ectropothecium pacificum Mitt.

Ectropothecium sodale (Sull.) Mitt.

Ectropothecium umbilicatum var. *protractum* (Müll. Hal.) Paris

***Glossadelphus hermaphroditus* M.Fleisch. (Hypnaceae)**

Chaetomitrium entodontoides Broth. & Watts (based on *Watts* Q352, NSW 298152) was excluded from *Chaetomitrium* by Streimann (1997), who considered it likely to be *Glossadelphus hermaphroditus*, a species known from Malesia. However, Streimann and Klazenga (2002) reported previous records of *Glossadelphus* in Australia as misidentifications. Many collections from the Wet Tropics are still identified as *Glossadelphus* sp. and need to be critically examined.

***Himantocladium plumula* (Nees) M.Fleisch. (Neckeraceae)**

Himantocladium plumula is monoicous, so when it is fertile it is readily distinguished from the dioicous species *H. cyclophyllum* (now *Neckeropsis cyclophylla*). Milne and Klazenga (2012b) considered *H. plumula* to be a doubtful Australian species. It was reported from Australia by Bartram (1952) from a collection by L.J. Brass (*Brass* 19258, FH) from Iron Range in the Wet Tropics. A collection by Streimann in 1998 from Cow Bay, near Mossman (CBG 9911376.1) was found to be sterile and thus could not confidently be assigned to *H. plumula* (J. Milne pers. comm. 2017). *Himantocladium plumula* was not listed as a Wet Tropics species in Ramsay and Cairns (2004).

***Philonotis pseudomollis* (Müll. Hal.) A.Jaeger (Bartramiaceae)**

Dixon (1942) first suggested that *P. pseudomollis* is doubtfully distinct from *P. tenuis*, and Gilmore (2012c) echoed this view. There is nothing in the protologue (Müller 1872) that would separate *P. pseudomollis* from *P. tenuis*. Unfortunately, the type of *P. pseudomollis* was probably destroyed in the bombing of Berlin during the Second World War (BGBM 2019). However, Meagher (in litt.) has reviewed plants from Lord Howe Island identified as that species by Brotherus, all collected by W.W. Watts in 1911, and all are entirely consistent with *P. tenuis* s.s. *Philonotis pseudomollis* may well be a synonym of *P. tenuis* and on that basis, we consider *P. pseudomollis* to be an uncertain taxon, pending a detailed study.

***Pterobryon humile* Mitt.**

See the discussion under *Calyptothecium humile* in Excluded Taxa.

Excluded taxa

***Austrohondaella limata* (Hook. f. & Wilson) Z.Iwats., H.P.Ramsay & Fife (Hypnaceae)**

This species was reported from the Wet Tropics by Ramsay and Cairns (2004) as *Isopterygium acuminatum* (Hook.f. & Wilson) Broth. (Hypnaceae). Two specimens labelled *I. acuminatum* from the Wet Tropics (MEL 2031226 and MEL 2031231) were examined by D. Meagher and found to be *Isopterygium albescens* (Hook.) A.Jaeger, while another (MEL 2031228) was found to be a species of *Rhynchostegium*. The distribution of *I. acuminatum* is therefore restricted to southern temperate Australia and New Zealand.

***Bartramia mossmaniana* Müll. Hal. (Bartramiaceae)**

The inclusion of the species in Ramsay and Cairns (2004) was based on a specimen from Bellenden Ker, identified by I.G. Stone (as a synonym *B. halleriana* Hedw.) in her handwriting in the early drafts of the Wet Tropics studies (pers. comm. H.P. Ramsay 2018). However, there are no Wet Tropics records of *B. mossmaniana* in Australian herbaria, and we think that the specimen was probably re-identified as another taxon.

***Brachythecium salebrosum* (F.Weber & D.Mohr) Schimp (Brachytheciaceae)**

This cosmopolitan species, known from North America, Eurasia, New Zealand and Macquarie Island, has been recorded from New South Wales, ACT, Victoria, south-east Queensland and Tasmania. The only record from the Wet Tropics (NSW 1001423) has been re-examined and identified as *Garovaglia elegans* (Dozy & Molk.) Bosch & Sande Lac. subsp. *dietrichiae* (Müll. Hal.) During. *Brachythecium salebrosum* has been deleted from the current list.

***Calyptrochaeta rotundifolia* Noguchi & Z.Iwats. (Daltoniaceae)**

This record was based on a single specimen from Bartle Frere (CBG 9706535). A later annotation on the specimen packet by B.C. Ho, August 2004, states: ‘non *Calyptrochaeta rotundifolia*. This specimen does not belong to any of the Malesian species of *Calyptrochaeta* and may be an extreme form of Australasian species or a completely new species.’ No further details were provided.

***Calyptothecium humile* (Mitt.) Broth. (Pterobryaceae)**

Streimann and Curnow (1989), and consequently Streimann and Klazenga (2002), treated *Pterobryon humile* Mitt. as a synonym of *C. humile*, which Mitten (1869) described from the South American Andes. Mitten (1883) treated *Calyptothecium*, *Trachyloma* and *Braithwaitea* as subgenera of *Pterobryon*, and in doing so named three new Australian species in subgenus *Calyptothecium*: *P. australinum* (now *Pterobryopsis australina*), *P. acutum* (*C. acutum*, now *C. urvilleanum*) and *P. humile*. For each, Mitten gave a Latin diagnosis, indicating that he was treating the species as new. The South American *Calyptothecium humile* Mitt. (1869) is based on a different type and is not the same as the Australian *Pterobryon humile* Mitt. (1882). This would mean that *C. humile* Mitt. (1869) does not exist in Australia, and the 17 collections with this name in Australian need to be re-examined. It also means that the status of *Pterobryon humile* Mitt. is currently uncertain.

***Camptochaete deflexa* (Wilson) A.Jaeger (Lembophyllaceae)**

The only records of this species from the Wet Tropics were based on collections by W.W. Watts from near Ravenshoe on the western edge of the Wet Tropics (NSW 496295, NSW 496307), which have been determined by N. Klazenga (pers. comm. 2012) as *C. excavata* (Taylor) A.Jaeger. The closest records of *C. deflexa* to the Wet Tropics are from Eungella, near Mackay, Central Queensland Coast, and Undarra in the Einasleigh Uplands bioregion.

***Campylopus ericoides* (Griff.) A.Jaeger (Leucobryaceae)**

Campylopus ericoides was excluded from the Australia flora by Klazenga (2012a). There remain three records for the species in Australia on AVH – two in central Queensland and one in Victoria; however, none are listed for north Queensland. This name has been deleted from the new Wet Tropics list.

***Campylopus laxitextus* Sande Lac. (Leucobryaceae)**

Most Australian records of *C. laxitextus* Sande Lac., including those from the Wet Tropics, have been re-identified as *C. flexuosus* (Hedw.) Brid. (Klazenga 2012a) (see also *C. excurrens* in text). Both species were listed by Ramsay and Cairns (2004).

***Dicranoloma robustum* (Hook.f. & Wilson) Paris (Dicranaceae)**

There are no Wet Tropics specimens of this species in Australian herbaria, but an undated collection in the British Museum of Natural History (BM) from the Bellenden Ker Range, made by an unknown collector, is

labelled as this species. Niels Klazenga advised that *D. robustum* is a wholly cold temperate species, and that the collection has undoubtedly been misidentified (N. Klazenga, pers. comm. 2017).

***Eurhynchium speciosum* (Brid.) Jur. (Brachytheciaceae)**

Eurhynchium speciosum was recorded from two sites in Australia – one from the Wet Tropics, collected in 1978 (Stone 26155, MEL 2329320A), and the other from New South Wales. However, Hedenäs (2002, 2012) excluded the species from the Australian bryoflora. *E. speciosum* was not included in the Ramsay and Cairns (2004) list.

***Fallaciella gracilis* (Hook. f. & Wilson) H.A.Crum (Lembophyllaceae)**

A duplicate of the only Wet Tropics record, from rainforest near Wallaman Falls (*Pócs 01108/D BRI AQ0834387*) was examined by A. Cairns and D. Meagher and determined to be a mixture of *Philonotis tenuis* (Taylor) Reichardt and *Anomobryum auratum* (Mitt.) A.Jaeger.

***Fissidens altisetus* Dixon (Fissidentaceae)**

Fissidens altisetus was considered a synonym of *F. bogoriensis* M.Fleisch. by Iwatsuki and Suzuki (1989) and listed as such by Streimann and Klazenga (2002). Ramsay and Cairns (2004) included the species because the former was not considered by I.G. Stone to occur in Australia. Seppelt and Stone (2016) prefer to retain *F. altisetus* as a separate species. However, the two collections cited by Seppelt and Stone (2016) are from Helenvale, beyond the northern boundary of the Wet Tropics bioregion.

***Fissidens gymnocarpus* I.G.Stone (Fissidentaceae)**

This species was mistakenly listed by Ramsay and Cairns (2004) for the Wet Tropics bioregion. The Australian records are from Cooktown, which is in the Cape York Peninsula bioregion (Stone 15808, BRI AQ0793940), and from Mt Garnet (Streimann 30228, CBG 8408583.1) and Hidden Valley, west of Paluma (Stone 25051, MEL 2034862A), both in the Einasleigh Uplands bioregions.

***Fissidens polyodioides* Hedw. (Fissidentaceae)**

Although reported for the Wet Tropics by Ramsay and Cairns (2004), the basis for this report is unknown. The distribution is southern USA, the Caribbean, Central America, and one record from China; there are no collections known from Australia. It is extremely unlikely that this species is represented in the Australian flora (R. Seppelt, pers. comm. 2018).

***Grimmia pulvinata* var. *africana* (Hedw.) Hook.f. & Wilson (Grimmiaceae)**

We could find no Wet Tropics collections of this species in Australian herbaria; the nearest record is from south-east Queensland.

***Imbribryum clavatum* (M. Fleisch.) J.R.Spence & H.P.Ramsay (Bryaceae)**

Bryum clavatum M. Fleischer, later *Gemmabryum clavatum* in the 2004 list, has been transferred more recently to *Imbribryum clavatum* (Spence and Ramsay 2013). This species, which occurs in temperate and cool climates, is no longer accepted for the Wet Tropics, as previous records have turned out to be errors for other species.

***Lembophyllum divulgum* (Hook.f. & Wilson) Lindb. (Lembophyllaceae)**

We agree with Klazenga and Milne (2012b) that records of this species from northern Queensland are most likely referable to *Camptochaete excavata* (Taylor) A. Jaeger or *Weymouthia cochlearifolia* (Schwägr.) Dixon. (*C. excavata* is common in the Wet Tropics, but there are no known specimens of *W. cochlearifolia* from the region.)

***Notoligotrichum australe* (Hook.f. & Wilson) G.L.Sm. (Polytrichaceae)**

The species is recorded from Queensland in Streimann and Klazenga (2002) but is most common in alpine and montane locations of southern Australia and New Zealand. As there are no records for the Wet Tropics or elsewhere in Queensland, its inclusion in Ramsay and Cairns (2004) was an error due to misinterpretation of Ramsay and Bergstrom (1995) about Macquarie Island mosses.

***Philonotis thwaitesii* Mitt. (Bartramiaceae)**

This otherwise Malaysian species, listed for the Wet Tropics by Ramsay and Cairns (2004), was not included in the Flora of Australia treatment (Gilmore 2012c). A single specimen collected in north Queensland by H. Streimann in 1984 (CBG 9000166.1) and identified by H. Ochi as '*Philonotis* cf. *thwaitesii*' was found to be *P. tenuis* (Taylor) Reichardt by Judith Curnow (CANB).

***Platyhypnidium austrinum* (Hook.f.& Wilson) M.Fleisch. (Brachytheciaceae)**

There are numerous collections of this taxon from south-eastern Australia, but the only record of *P. austrinum* in the Wet Tropics, from Downey Creek, near Innisfail was based on a segregate of Stone 25090 (*Stone 25090B*, MEL 2326976A). The other segregate (*Stone 25090A*, MEL 2326975A) was examined by Ochyra and Bednarek-Ochyra (2014) and identified as *Platyhypnidium muelleri* (duplicate specimen KRAM B-86172). However, Ochyra (*pers. comm.* to A. Cairns) reconsidered the identity of the KRAM collection (*Stone 25090A*, KRAM B-86172) and now believes it is identical to *Rhynchostegium brevinerve*. Comparison of the two MEL specimens (*Stone 25090A* and *B*) showed them both to be *R. brevinerve*.

***Pterobryella breviacuminata* Besch. (Pterobryellaceae)**

The record of *P. breviacuminata* in Ramsay and Cairns (2004) was based on a collection from the western slope of Mt Bartle Frere (*Norris 42774*, BRI AQ0761026). A duplicate of that specimen (CBG 9509234.1) was examined by Angela Newton in 2004 and identified as *Hypnodendron comatulum* (now *Mniodendron comatulum*). Both specimens have now been checked and their identity as *M. comatulum* is confirmed.

***Taxithelium planum* (Brid.) Mitt. (Pylaisiadelphaceae)**

Câmara (2011b) considered *T. planum* to be a Northern Hemisphere species. Ramsay (2012b) subsequently re-examined the two Wet Tropics collections of *T. planum* and determined both to be *T. nepalense*. Although there are other specimens identified as *T. planum* in Australian herbaria that need critical re-evaluation, we consider that these are all likely to be *T. nepalense*.

***Torrentaria muelleri* (A.Jaeger) Ochyra & Bednarek-Ochyra (Brachytheciaceae)**

Torrentaria muelleri (as *Platyhypnidium muelleri* (A.Jaeger) M.Fleisch.) was reported for the Wet Tropics by Ramsay and Cairns (2004). However, specimens from Australia (*Scott 7409*, KRAM B-87048; *Stone 25090*, KRAM B-86172) previously attributed to *T. muelleri* by Ochyra and Bednarek-Ochyra (2014) are *Rhynchostegium brevinerve* (Ochyra *pers. comm.* 2017).

Confirmed taxa

***Breutelia affinis* (Hook.) Mitt. (Bartramiaceae)**

A single record for the Wet Tropics (*Streimann 37795*, CBG 9004110) was listed by Gilmore (2012b). This specimen was collected from a tree trunk, an otherwise unreported habitat for the species, which is typically lithophytic or terrestrial (Virtanen 1997; Gilmore 2012b). However, the identity of this collection was confirmed by Judith Curnow (*pers. comm.* 21 June 2018).

***Dicnemon calycinum* (Hook.) Schwägr. (Dicranaceae)**

In his revision of the family Dicnemonaceae, Allen (1987) recorded *D. calycinum* for Queensland based on a single collection (in MO) from Kuranda: ‘Paradise Jungle, near Cairns (home of A.A. Duggan) on bark. *Eula Whitehouse 28934* 12 November 1954’. Allen remarked (*pers. comm.* 2018) that Dixon (1923) and Scott and Stone (1976) were doubtful about the taxon being in Australia: “The Dixon (1923) reference is based on a ‘scrap’ at Kew that apparently has a label with no collector and only ‘Nov. Holl.’ given as locality. The Scott and Stone (1976) reference is to the Watts and Whitelegge Census which gives the collection as ‘Australia: herb. Dickson (Mitt. Cat.)’.”

Previous specimens with this name from Australian herbaria have been checked and re-identified; however, the identity of the MO collection is confirmed (B. Allen, *pers. comm.*, June 2018). The Duggan home was probably destroyed in the 1950s to accommodate modifications to the Cairns–Kuranda road (W. Clinton, *pers. comm.* June 2018). There are no other records of this species in Australian herbaria.

***Fissidens autoicous* Thér. & Dixon (Fissidentaceae)**

Fissidens autoicous was listed by Ramsay and Cairns (2004) on account of a single record from Babinda in 1913 (*Watts Q 332a*, NSW 360700 as *F. cairnensis* Broth. & Watts). Recent collections from Russell River Road (*Meagher & Cairns WT-094*, BRI AQ1000878) and from near Tully (*Meagher & Cairns WT-355A*, BRI AQ1000876) identified by R. Seppelt, confirm its presence in the Wet Tropics. The species is also recorded from Borneo and Papua New Guinea.

***Leucobryum chlorophyllosum* Müll.Hal. (Leucobryaceae)**

A recent collection from Thornton Peak (*Renner 8486*, NSW 1033515) was confirmed as *L. chlorophyllosum* by Klazenga (*pers. comm.* 2018) and is the first report for the Wet Tropics. All earlier Australian herbarium

specimens of *L. chlorophyllosum* proved to be narrow-leaved forms of *L. sanctum* (Klazenga 2012c), a species already known from the Wet Tropics.

***Leucophanes angustifolium* Renaud & Cardot (Calymperaceae)**

This species is widely distributed in the central to southern Wet Tropics. It was included in Ramsay and Cairns (2004) but overlooked by Catcheside (2012) in his treatment of the genus for the Flora of Australia.

***Rhynchostegium nanopennatum* (Broth.) Kindb. (Brachytheciaceae)**

This species, reported from Abergowrie State Forest, west of Ingham (BRI AQ858154, Cairns and Meagher 2017), was previously known only from collections by F.M. Bailey in 1889 (BRI AQ0721982) and W.W. Watts in 1913 (NSW752135; NSW752137; NSW752138), all from low elevations on the eastern flank of the Bellenden Ker Range. Recent examination of a mixed collection collected in 2015 from a tree branch in the Palmerston section of Wooroonooran National Park (*Meagher WT-011B*, BRI AQ1000875) revealed an additional specimen of *R. nanopennatum*, which extends the known range of this rare species.

Checklist of mosses of the Wet Tropics bioregion

* = new to the Wet Tropics list since 2004

= taxonomic adjustment since 2004

Amblystegiaceae

Leptodictyum riparium (Hedw.) Warnst.

Anomodontaceae

Herpetineuron toccoae (Sull. & Lesq.) Cardot

Archidiaceae

Archidium brevinerve P.de la Verde

Archidium capense Hornsch.

Archidium clarksionianum I.G.Stone

Archidium elatum Dixon & Sainsbury

Archidium microthecium Dixon & P.de la Verde

Archidium minutissum I.G.Stone

Archidium ohioense Schimp. ex Müll. Hal.

Archidium rothii Watts ex G. Roth.

Archidium sp. A (Stone 21398, MEL 2260329A)

Archidium sp. B (Stone 24571, MEL 2326316A)

Archidium sp. C (Stone 22120, MEL 2262729A)

Aulacomniaceae

Mesochaete taxiforme (Hampe) Watts & Whitel.

Mesochaete undulata Lindb.

Bartramiaceae

Breutelia affinis (Hook.) Mitt.

Philonotis hastata (Duby) Wijk & Margad.

Philonotis slateri (Hampe) Jaeger *

Philonotis tenuis (Taylor) Reichardt

Brachytheciaceae

Eurhynchium laevisetum Geh.

Rhynchostegium brevinerve Huttunen & Ignatov *

Rhynchostegium distratum (Hampe) A.Jaeger

Rhynchostegium nanopennatum (Broth.) Kindb.

Rhynchostegium tenuifolium (Hedw.) Reichardt var. *tenuifolium*

Braithwaiteaceae

Braithwaitea sulcata (Hook.) A.Jaeger

Bruchiaceae

Trematodon longicollis Michaux #

Trematodon suberectus Mitt.

Bryaceae

- Anomobryum auratum* (Mitt.) A.Jaeger #
Brachymenium nepalense Hook.
Bryum argenteum Hedw.
Bryum lanatum (P.Beauv) Brid.
Gemmabryum acuminatum (Harv. ex Hook.) J.R.Spence & H.P.Ramsay
Gemmabryum apiculatum (Schwägr.) J.R.Spence & H.P.Ramsay
Gemmabryum chrysoneuron (Müll. Hal.) J.R.Spence & H.P.Ramsay
Gemmabryum coronatum (Schwägr.) J.R.Spence & H.P.Ramsay
Gemmabryum dichotomum (Hedw.) J.R.Spence & H.P.Ramsay
Gemmabryum erythropilum J.R.Spence & H.P.Ramsay *
Gemmabryum exile (Dozy & Molk.) J.R.Spence & H.P.Ramsay
Gemmabryum inaequale (Taylor) J.R.Spence & HP Ramsay *
Gemmabryum indicum (Dozy & Molk.) J.R.Spence & H.P.Ramsay
Gemmabryum pachythemum (Müll. Hal.) J.R.Spence & H.P.Ramsay
Gemmabryum preissianum (Hampe) J.R.Spence & H.P.Ramsay
Gemmabryum tenuisetum (Limr.) J.R.Spence & H.P.Ramsay *
Gemmabryum tuberosum (Hampe) J.R.Spence & H.P.Ramsay #
Imbribryum australe (Hampe) J.R.Spence & H.P.Ramsay #
Plagiobryoides cellularis (Hook.) J.R.Spence *
Rhodobryum graeffeanum (Müll. Hal.) Paris #
Rosulabryum albolimbatum (Hampe) J.R.Spence
Rosulabryum billardieri (Schwägr.) J.R.Spence
Rosulabryum capillare (Hedw.) J.R.Spence
Rosulabryum epiphyticum J.R.Spence & H.P.Ramsay
Rosulabryum lamingtonicum J.R.Spence & H.P.Ramsay
Rosulabryum leptothrix (Müll. Hal.) J.R.Spence
Rosulabryum rubens (Hedw.) J.R.Spence *
Rosulabryum subfasciculatum (Hampe) J.R.Spence
Rosulabryum subtomentosum (Hampe) J.R.Spence
Rosulabryum torquescens (Bruch. ex De Not.) J.R.Spence
Rosulabryum wightii (Mitt.) J.R.Spence
Bryobartramia novae-valesiae (Broth. ex G.Roth) I.G.Stone & G.A.M.Scott *

Buxbaumiaceae

- Buxbaumia aphylla* Hedw.*
Buxbaumia colyerae Burges
Buxbaumia thorsborneae I.G.Stone

Calymperaceae

- Arthrocormus schimperi* (Dozy & Molk.) Dozy & Molk.
Calymperes afzelii Sw.
Calymperes boulayi Besch.
Calymperes cougouense Besch.
Calymperes crassinerve (Mitt.) A.Jaeger
Calymperes erosum Müll. Hal.
Calymperes graeffeanum Müll. Hal.
Calymperes lonchophyllum Schwägr.
Calymperes moluccense Schwägr.
Calymperes motleyi Mitt.
Calymperes porrectum Mitt.
Calymperes serratum A.Braun ex Müll. Hal.
Calymperes strictifolium (Mitt.) G.Roth.
Calymperes subintegrum Broth.
Calymperes taitense (Sull.) Mitt.
Calymperes tenerum Müll. Hal.
Exostratum blumei (Nees ex Hampe) L.T.Ellis
Leucophanes angustifolium Renauld & Cardot
Leucophanes candidum (Schwägr.) Lindb.
Leucophanes glaucum (Schwägr.) Mitt.

Leucophanes octoblepharoides Brid.
Mitthyridium constrictum (Sull.) H.Rob.
Mitthyridium crassum (Broth.) H.Rob.
Mitthyridium fasciculatum (Hook. & Grev.) H.Rob.
Mitthyridium flavum (Müll. Hal.) H.Rob.
Mitthyridium leucoloma (Müll. Hal.) H.Rob.
Mitthyridium papuanum (Broth.) H.Rob.
Mitthyridium perundulatum (Broth.) H.Rob.
Mitthyridium repens (Harv.) H.Rob.
Mitthyridium subluteum (Müll. Hal.) H.K.Novak
Octoblepharum albidum Hedw.
Syrrhopodon albovaginatus Schwägr.
Syrrhopodon aristifolius Mitt.
Syrrhopodon armatus Mitt.
Syrrhopodon ciliatus (Hook.) Schwägr.
Syrrhopodon confertus Sande Lac.
Syrrhopodon croceus Mitt.
Syrrhopodon cyrtacanthus Reese
Syrrhopodon gardneri (Hook. & Grev.) Schwägr.*
Syrrhopodon involutus Schwägr.
Syrrhopodon muelleri (Dozy & Molk.) Sande Lac.
Syrrhopodon parasiticus (Brid.) Besch.
Syrrhopodon platycerii Mitt.
Syrrhopodon prolifer Schwägr. var. *mossmanensis* Reese
Syrrhopodon prolifer Schwägr. var. *prolifer*
Syrrhopodon stoneae Reese
Syrrhopodon trachyphyllus Mont.
Syrrhopodon tristichus Nees ex Schwägr.

Cryphaeaceae

Cryphaea tenella (Schwaegr.) Hornsch. ex Müll. Hal.
Cyrtodon muelleri (Hampe) M.Fleisch
Schoenobryum concavifolium (Griff.) Gangulee

Daltoniaceae

Achrophyllum dentatum (Hook.f. & Wilson) Vitt & Crosby
Calyptrochaeta apiculata (Hook.f. & Wilson) Vitt
Calyptrochaeta brassii (E.B.Bartram) Streimann
Calyptrochaeta flexicollis (Mitt.) Vitt.*
Daltonia marginata Griff. #
Daltonia splachnoides (Sm.) Hook. & Taylor
Distichophyllum crispulum (Hook.f. & Wilson) Mitt.
Distichophyllum cuspidatum (Dozy & Molk.) Dozy & Molk.
Distichophyllum mittenii Bosch. & Sande Lac
Ephemeropsis tjibodensis K.J.Goebel
Bryobrothera crenulata (Broth. & Paris) Thér.

Dicranaceae

Dicnemon calycinum (Hook.) Schwägr.
Dicranella dietrichiae (Müll.Hal.) A.Jaeger
Dicranella euryphylla Dixon
Dicranella pycnoglossa (Broth.) Kindb. var. *pycnoglossa*
Dicranoloma austroscoparium (Müll. Hal. ex Broth.) Watts &Whitel. #
Dicranoloma braunii (Müll. Hal. ex Bosch. & Sande Lac.) Paris
Dicranoloma daymannianum E.B.Bartram
Dicranoloma dicarpum (Nees) Paris
Dicranoloma leichhardtii (Hampe) Watts & Whitel.
Dicranoloma menziesii (Taylor) Renaud
Eucamptodon muelleri Hampe & Müll.Hal. var. *muelleri*
Eucamptodon scalarirete (Dixon) B.C.Tan, H.P.Ramsay & W.B.Schofield
Holomitrium cylindraceum (P.Beauv.) Wijk & Margad.*

Holomitrium perichaetiale (Hook.) Brid.
Leptotrichella tenax (Müll. Hal.) Ochyra var. *longipes* (Müll. Hal.) Ochyra
Leucoloma circinatulum E.B.Bartram *
Leucoloma molle (Müll. Hal.) Mitt.
Sclerodontium clavinerve (Müll. Hal.) H.A.Crum
Sclerodontium pallidum (Hook.) Schwägr. var. *pallidum*

Diphysciaceae

Diphyscium mucronifolium Mitt.

Ditrichaceae

Ditrichum difficile (Duby) M.Fleisch.
Eccremidium brisbanicum (Broth.) I.G.Stone & G.A.M.Scott
Eccremidium minutum (Mitt.) I.G.Stone & G.A.M.Scott
Eccremidium pulchellum (Hook.f. & Wilson) Müll. Hal.
Garckea flexuosa (Griff.) Margad. & Nork.
Pleuridium nervosum (Hook.) Mitt. *
Wilsoniella karsteniana Müll. Hal.

Entodontaceae

Entodon mackaviensis Müll. Hal.
Entodon plicatus Müll. Hal.
Mesonodon flavescens (Hook.) W.R.Buck

Erpodiaceae

Solmsiella biseriata (Austin) Steere *
Solmsiella solmsiellacea (Müll. Hal. & Broth.) Pursell #
Venturiella coronata subsp. *australiensis* (I.G.Stone) Pursell #
Venturiella hodgkinsoniae (Hampe & Müll. Hal.) Pursell #

Fabroniaceae

Fabronia australis Hook.
Fabronia scottiae Müll. Hal.*

Fissidentaceae

Fissidens asplenioides Hedw.
Fissidens autoicous Thér. & Dixon
Fissidens badyinbarus I.G.Stone & Catches.
Fissidens beckettii Mitt. *
Fissidens biformis Mitt. *
Fissidens bogoriensis M.Fleisch. *
Fissidens bryoides Hedw. #
Fissidens ceylonensis Dozy & Molk.
Fissidens crenulatus Mitt. var. *crenulatus*
Fissidens crenulatus Mitt. var. *elmeri* (Broth.) Z.Iwatsuki & Tad.Suzuki *
Fissidens crispulus Brid.
Fissidens curvatus Hornsch. var. *curvatus*
Fissidens curvatus var. *inclinabilis* (Müll. Hal. ex Dixon) Beever *
Fissidens darwinianus Catches. & I.G.Stone *
Fissidens dietrichiae Müll. Hal.
Fissidens elegans Brid. *
Fissidens flabellulus Thwaites & Mitt. var. *eachamensis* I.G.Stone
Fissidens flabellulus Thwaites & Mitt. var. *flabellulus*
Fissidens flaccidus Mitt. *
Fissidens gardneri Mitt.
Fissidens henryae I.G.Stone
Fissidens hollianus Dozy & Molk.
Fissidens hyalinus Hook. & Wilson
Fissidens intromarginatulus E.B.Bartram *
Fissidens leptocladus Müll. Hal. ex Rodway #
Fissidens linearis Brid. var. *linearis* *
Fissidens linearis Brid. var. *obscurirete* (Broth.) I.G.Stone
Fissidens oblatus I.G.Stone & Catches.

Fissidens oblongifolius Hook.f. & Wilson var. *hyophilus* (Mitt.) Beever & I.G.Stone
Fissidens oblongifolius Hook.f. & Wilson var. *oblongifolius*
Fissidens oblongifolius Hook.f. & Wilson var. *palmerstonensis* (I.G.Stone) Beever & I.G.Stone *
Fissidens pallidus Hook.f. & Wilson var. *pallidus*
Fissidens pellucidus Hornsch. #
Fissidens perobtusus Dixon
Fissidens perpusillus Wilson & Mitt. #
Fissidens pseudopallidus I.G.Stone
Fissidens rupicola Paris & Broth.
Fissidens serratus Müll.Hal.
Fissidens submarginatus Bruch. #
Fissidens sufflatus I.G.Stone
Fissidens tenellus Hook.f. & Wilson var. *tenellus*
Fissidens tenellus Hook.f. & Wilson var. *australiensis* (A.Jaeger) Beever & I.G.Stone
Fissidens thorsbornei (I.G.Stone) Brugg.-Nann. #
Fissidens zollingeri Mont.

Funariaceae

Entosthodon radians (Hedw.) Müll. Hal.*
Funaria hygrometrica Hedw.

Gigaspermaceae

Gigaspermum repens (Hook.) Lindb.

Grimmiaceae

Grimmia laevigata (Brid.) Brid.*

Hedwigiaceae

Hedwigidium integrifolium (P.Beauv.) Dixon *

Hypnaceae

Ectropothecium moritzii A.Jaeger
Ectropothecium riparioides (Bél) A.Jaeger
Ectropothecium umbilicatum (Müll. Hal.) Paris var. *umbilicatum*
Ectropothecium zollingeri (Müll. Hal.) A.Jaeger
Hypnum cupressiforme Hedw.
Hypnum subchrysogaster (Broth.) Paris
Pseudohypnella verrucosa (Dozy & Molk.) M.Fleisch.
Taxiphyllum taxirameum (Mitt.) M.Fleisch.
Vesicularia montagnei (Schimp.) Broth.*
Vesicularia rivalis Broth.

Hypnodendraceae

Bescherellia elegantissima Duby
Hypnodendron spininervium (Hook.) A.Jaeger & Sauerb. subsp. *archeri* (Mitt.) Touw
Hypnodendron vitiense Mitt. subsp. *australe* Touw
Hypnodendron vitiense Mitt. subsp. *vitiense*
Mniodendron comatulum Geh. ex Broth. #

Hypopterygiaceae

Cyathophorum bulbosum (Hedw.) Müll. Hal.
Hypopterygium tamarisci (Sw.) Brid. ex Müll. Hal.
Lopidium concinnum (Hook.) Wilson
Lopidium struthiopteris (Brid.) M.Fleisch.

Lembophyllaceae

Camptochaete curvata Tangney
Camptochaete excavata (Taylor) A.Jaeger

Leptodontaceae

Forsstroemia producta (Hornsch.) Paris *

Leptostomataceae

Leptostomum erectum R.Br.

Leskeaceae

Claopodium assurgens (Sull. & Lesq.) Cardot

Leucobryaceae

Campylopus appressifolius Mitt.*

Campylopus catarractilis (Müll. Hal.) Paris

Campylopus comosus (Schwägr.) Bosch. & Sande Lac.

Campylopus excurrens Dixon *

Campylopus flexuosus (Hedw.) Brid.

Campylopus introflexus (Hedw.) Brid. #

Campylopus perauriculatus Broth. #

Campylopus torquatus Mitt. #

Campylopus umbellatus (Arn.) Paris

Leucobryum aduncum Dozy & Molk. var. *aduncum*

Leucobryum aduncum var. *scalare* (M.Fleisch) A.Eddy #

Leucobryum candidum (Brid. ex P.Beauv.) Wilson

Leucobryum chlorophyllosum Müll. Hal.

Leucobryum sanctum (Schwägr.) Hampe ex Müll. Hal.

Leucobryum wattsii Broth.

Leucomiaceae

Leucomium strumosum (Hornsch.) Mitt.

Meesiaceae

Leptobryum pyriforme (Hedw.) Wilson

Meteoriaceae

Note: Goffinet and Buck (2018) do not accept genus *Papillaria*

Aerobryopsis longissima (Dozy & Molk.) M.Fleisch.

Barbellopsis trichophora (Mont.) W.R Buck

Floribundaria floribunda (Dozy & Molk.) M.Fleisch.

Floribundaria pseudofloribunda M.Fleisch.

Floribundaria walkeri (Renauld & Cardot) Broth.

Meteoriopsis reclinata (Müll. Hal.) M.Fleisch. ex Broth.

Meteoriopsis undulata Horik. & Nog.*

Meteorium polytrichum Dozy & Molk.

Papillaria crocea (Hampe) A.Jaeger

Papillaria flexicaulis (Wilson) A.Jaeger

Papillaria leuconeura (Müll. Hal.) A.Jaeger

Papillaria nitens (Hook.f. & Wilson) Sainsbury

Papillaria zeliflexicaulis Streimann *

Pseudospiridentopsis horrida (Mitt. ex Cardot) M.Fleisch.

Toloxis intricata (Mitt.) L.Y.Pei, Y.Jia & Y.F.Wang *

Trachypus humilis Lindb.

Mitteniaceae

Mittenia plumula (Mitt.) Lindb.

Mniaceae

Orthomnion elimbatum (Nog.) T.J.Kop.

Myriniaceae

Macgregorella indica (Broth.) W.R.Buck

Myuriaceae

Oedicladium rufescens Mitt. var. *rufescens*

Oedicladium rufescens var. *purpuratum* (Mitt.) Klazenga #

Neckeraceae

Caduciella mariei (Besch.) Enroth.

Circulifolium exiguum (Bosch & Sande Lac.) S.Olsson, Enroth & D.Quandt #

Homali dendron flabellatum (Sm.) M.Fleisch.

Neckeromnion lepineanum (Mont.) S.Olssen, Enroth, Huttunen & D.Quandt #

Neckeropsis cyclophyllum (Müll.Hal.) S. Olsson, Enroth & D.Quandt #

Neckeropsis nanodisticha (Geh.) M.Fleisch.
Pinnatella alopecurioides (Mitt.) M.Fleisch.
Pinnatella kuehliana (Bosch & Sande Lac.) M.Fleisch.
Thamnobryum pandum (Hook.f. & Wilson) I.G.Stone & G.A.M.Scott
Thamnobryum pumilum (Hook.f. & Wilson) Nieuwl.
Touwia elliptica (Bosch. & Sande Lac) S.Olsson, Enroth & D.Quandt #
Touwia laticostata Ochyra #

Orthorrhynchiaceae

Orthorrhynchium elegans (Hook.f. & Wilson) Reichhardt subsp. *cymbifolioides*

Orthotrichaceae

Groutiella tomentosa (Hornsch.) Wijk & Margad.
Macromitrium archeri Mitt.
Macromitrium aurescens Hampe
Macromitrium brevicaule (Besch.) Broth.*
Macromitrium caloblastoides Müll. Hal.
Macromitrium diaphanum Müll. Hal.
Macromitrium dielsii Broth. ex Vitt & H.P.Ramsay
Macromitrium erythrocomum H.P.Ramsay, Cairns & Meagher *
Macromitrium exsertum Broth.
Macromitrium funiforme Dixon
Macromitrium hemitrichodes Schwägr.
Macromitrium hortoniae Vitt & H.P.Ramsay
Macromitrium incurvifolium (Hook. & Grev.) Schwägr.
Macromitrium involutifolium (Hook. & Grev.) Schwägr. subsp. *involutifolium*
Macromitrium involutifolium subsp. *ptychomitrioides* (Besch.) Vitt & H.P.Ramsay
Macromitrium leratii Broth. & Paris
Macromitrium ligulaefolium Broth.
Macromitrium ligulare Mitt.*
Macromitrium microstomum (Hook. & Grev.) Schwägr.
Macromitrium repandum Müll. Hal.
Macromitrium stoneae Vitt & H.P.Ramsay
Schlotheimia brownii Schwägr.
Schlotheimia funiformis Taylor ex Dixon
Zygodon intermedius Bruch. & Schimp.

Pilotrichaceae

Callicostella papillata (Mont.) Mitt. var. *papillata*
Callicostella papillata var. *prabaktiana* (Müll. Hal.) Streimann
Cyclodictyon blumeinum (Müll. Hal.) O.Kuntze
Hookeriopsis utacamundiana (Mont.) Broth.
Thamniopsis utacamundiana (Mont.) W.R.Buck *

Plagiotheciaceae

Isopterygiopsis pulchella (Hedw.) Z.Iwats.*
Pseudotaxiphyllophorum pohliaecarpum (Sull. & Lesq.) Z.Iwats.*

Polytrichaceae

Dawsonia longiseta Hampe
Dawsonia polytrichoides R.Br.
Pogonatum neesii (Müll. Hal.) Dozy
Pogonatum tubulosum Dixon
Polytrichum juniperinum Hedw.

Pottiaceae

Anoetangium aestivum (Hedw.) Mitt.
Barbula consanguinea (Thwaites & Mitt.) A.Jaeger *
Barbula indica (Hook.) Spreng.*
Barbula subcalycina Müll. Hal.
Ephemerum fimbriatum Müll. Hal.
Gymnostomum calcareum Nees & Hornsch.*
Hyophila involuta (Hook.) A.Jaeger

Pseudosymblepharis bombayensis (Müll. Hal.) P.Sollman
Trachycarpidium brisbanicum (Müll. Hal.) I.G.Stone
Trichostomum brachydontium Bruch.
Weissia balansae (Müll. Hal.) R.H.Zander #
Weissia controversa Hedw.
Weissia edentula Mitt.*
Weissia perpusilla (Müll. Hal.) I.G.Stone *

Pterobryaceae

Calyptothecium recurvulum (Broth.) Broth.#
Calyptothecium urvilleanum (Müll. Hal.) Broth.*
Cryptogonium phyllogonioides (Sull) Isov.
Muellerobryum whiteleggei (Broth.) M.Fleisch.
Neolindbergia vitiensis (E.B.Bartram) Enroth
Pterobryidium australe Broth. & Watts
Pterobryopsis australina (Mitt.) N.-N.Yu & Y.Jia #
Symphysodontella splendens (Reinw. & Hornsch.) Touw & Magill *

Ptychomitriaceae

Ptychomitrium australe (Hampe) A.Jaeger

Ptychomniaceae

Euptychium setigerum (Sull.) Broth. subsp. *setigerum*
Garovaglia elegans (Dozy & Molk.) Bosch. & Sande Lac. subsp. *dietrichiae* (Müll. Hal.) During
Garovaglia powellii var. *muelleri* (Hampe) During *
Hampeella concavifolia Hattaway & D.H.Norris
Hampeella pallens (Sande Lac.) M.Fleisch.
Ptychomnion aciculare (Brid.) Mitt.

Pylaisiadelphaceae

Clastobryum cuculligerum var. *dimorphum* (Sande Lac) Tixier (I.G.Stone) B.C.Tan, T.J.Kop. & D.H.Norris #
Clastobryum epiphyllum (Renauld & Cardot) B.C.Tan & Touw
Isocradiella wattsi (Broth.) B.C.Tan, H.P.Ramsay & W.B.Schofield
Isopterygium albescens (Hook.) A.Jaeger #
Taxithelium instratum (Brid.) Broth.
Taxithelium kerianum (Brid.) Broth.
Taxithelium leptosigmatum (Müll. Hal. ex. Geh.) Paris#
Taxithelium lindbergii (A.Jaeger) Renauld & Cardot *
Taxithelium muscicola (Broth.) B.C.Tan, H.P.Ramsay & W.B.Schofield
Taxithelium nepalense (Schwägr.) Broth.
Trachyphyllum inflexum (Harv.) A.Gepp.
Trismegistia lancifolia (Harv.) Broth. var. *australiensis* H.Akiy. #
Wijkia extenuata (Brid.) H.A.Crum

Racopilaceae

Powellia involutifolia Mitt.
Powelliosis integra (Dixon) Zanten #
Racopilum cuspidigerum (Schwägr.) Ångst. var. *convolutaceum* (Müll. Hal.) Zant. & Dijkstra
Racopilum cuspidigerum (Schwägr.) Ångst. var. *cuspidigerum*

Rhizogoniaceae

Pyrrhobryum latifolium (Bosch. & Sande Lac.) Mitt.
Pyrrhobryum medium (Besch.) Manuel
Pyrrhobryum paramattense (Müll. Hal.) Manuel
Pyrrhobryum spiniforme (Hedw.) Mitt.
Rhizogonium graeffeanum (Müll. Hal.) A.Jaeger

Sematophyllaceae

Acanthorrhynchium papillatum (Harv.) M.Fleisch.
Acroporium hyalinum (Reinw. ex Schwägr.) Mitt. var. *hyalinum* #
Acroporium lamprophyllum Mitt. var. *percaudatum* (E.B.Bartram) B.C.Tan, W.B.Schofield & H.P.Ramsay
Acroporium microcladon (Dozy & Molk.) B.C.Tan, var. *rhizogemmae* B.C.Tan, W.B.Schofield & H.P.Ramsay
Acroporium strepsiphyllum (Mont.) B.C.Tan

Clastobryophilum balanseanum (Besch.) Broth.*
Macrohymenium mitratum (Dozy & Molk.) M.Fleisch.
Meiotheciella papillosa (Broth.) B.C.Tan, W.B.Schofield & H.P.Ramsay
Meiothecium intextum Mitt. #
Meiothecium microcarpum (Hook.) Mitt.
Meiothecium secundifolium Dixon
Radulina borbonica (Bél.) W.R.Buck #
Rhaphidorrhynchium amoenum (Hedw.) M.Fleisch. var. *amoenum*
Sematophyllum homomallum (Hampe) Broth.
Sematophyllum subhumile (Müll.Hal.) M.Fleisch. var. *contiguum* (Mitt.) B.C.Tan, H.P.Ramsay & W.B.Schofield
Sematophyllum subhumile (Müll.Hal.) M.Fleisch. var. *subhumile*
Sematophyllum subpinnatum (Brid.) E.Britton
Trichosteleum boschii (Dozy & Molk.) A.Jaeger
Trichosteleum ruficaule (Thwaites & Mitt.) B.C.Tan
Trichosteleum subfalcatulum (Broth. & Watts) B.C.Tan, W.B.Schofield & H.P.Ramsay
Trichosteleum watsii (Paris) B.C.Tan, W.B.Schofield & H.P.Ramsay
Warburgiella cupressinoides Müll. Hal. ex Broth. #
Warburgiella leucocytus (Müll. Hal.) B.C.Tan, W.B.Schofield & H.P.Ramsay #

Sorapillaceae

Sorapilla papuana Broth. & Geh.

Sphagnaceae

Sphagnum perichaetiale Hampe

Stereophyllaceae

Entodontopsis pygmaea (Paris & Broth.) W.R.Buck & Ireland*

Stereophyllum radiculosum (Hook.) Mitt.

Symphyodontaceae

Chaetomitrium tahitense (Sull.) Mitt.

Trachythecium verrucosum (A.Jaeger) M.Fleisch.

Thuidiaceae

Pelekium gratum (P.Beauv.) Touw

Pelekium investe (Mitt.) Touw

Pelekium synoicum (Touw) Touw

Thuidiopsis sparsa (Hook.f. & Wilson) Broth. var. *sparsa*

Thuidium cymbifolium (Dozy & Molk.) Dozy & Molk.

Trachylomataceae

Trachyloma diversinerve Hampe

Trachyloma indicum Mitt. var. *indicum*

Trachyloma indicum Mitt. var. *novae-guineae* (Müll. Hal.) N.G.Mill. & Manuel *

Trachyloma planifolium (Hedw.) Brid.

Viridivelleraceae

Viridivellus pulchellum I.G.Stone

Acknowledgements

We first acknowledge the Traditional Owners of the lands on which the collections cited in this paper were made and recognise and respect their elders past and present.

We greatly appreciate the cooperation of bryologists, both in Australia and overseas, who have generously provided unpublished records or checked data and specimens, particularly Alison Downing (MQ), Andrew Franks (BRI), Chris Cargill and Judith Curnow (CANB), Nimal Karunajeewa, Niels Klazenga, and Pina Milne (MEL), Kathi Downs and Matt Renner (NSW), Rod Seppelt (HO), Ryszard Ochyra (KRAM), and Bruce Allen (MO).

In addition to those already acknowledged in Ramsay and Cairns (2004: 391), we have acquired duplicates of Bernard van Zanten collections sent from GRO and a species list from Bill Weber who collected in the Wet Tropics in 1968 and whose duplicate collections are in CANB.

We greatly appreciated discussions on recent taxonomic changes with Bernard Goffinet (University of Connecticut), Bill Buck (NYBG), and Niels Klazenga (MEL). We also thank Will Cairns, Roger Fryer, Megan Grixti, Darren Crayn and Stuart Worboys for their generous help with field work, and Warren Clinton (Kuranda Riverboat Tours) for advice on the location of Paradise Jungle.

We are also grateful to the reviewers of the manuscript for their valuable comments and suggestions.

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Manuscript submitted 17 November 2018; accepted 26 February 2019